NATIVE AMERICAN AND ALASKA NATIVE RESOURCE USES

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Introduction

The U.S. Department of the Interior (USDI) Bureau of Land Management (BLM) is proposing to add the active ingredients aminopyralid, fluroxypyr, and rimsulfuron to its list of approved active ingredients for use on public lands. The three new herbicides would be used to treat vegetation as part of the BLM's vegetation management programs, which affect an estimated 6 million acres annually in 17 western states. The purpose of vegetation treatment is to conserve and restore vegetation, fish and wildlife habitat, and watershed function on lands administered by the BLM (public lands).

In 2007, the BLM released the Record of Decision (ROD) for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (2007 PEIS; USDI BLM 2007a), which approved 18 herbicides for use on BLM lands. Addition of the three new herbicides would bring the total number approved for use to 21.

The BLM is preparing a *Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on Bureal of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (2015 PEIS) to evaluate the impacts of vegetation treatments with the three new herbicides on the environment and local economies. An assessment of the risks to humans, vegetation, fish, and wildlife from using these chemicals is currently underway.

The BLM has important obligations to address the concerns of Native Americans and Alaska Natives about the management of land, as well as natural and cultural resources. The BLM administers more than 245 million acres that are widely distributed throughout the West and Alaska, and that have many potential uses by Native Americans and Alaska Natives (USDI BLM 2004). A number of laws and regulations require the BLM to consider the impacts of its program on Native American and Alaska Native groups. To address the effects of the proposed treatment actions on traditionally used resources, the BLM has included Native American and Alaska Native groups in scoping meetings; coordinated with the BLM state tribal liaisons; sent consultation letters to the tribes (see Appendix C of the 2015 PEIS); had background research conducted on potential impacts to their uses of such resources as plants, animals, and cultural sites; and had this report on the methods and results of the work prepared.

The purpose of this report is to document the use of natural resources by Native Americans and Alaska Natives on public lands. In particular, this report focuses on the use of vegetation by these groups. The report includes a brief summary of applicable laws and regulations, and a discussion of the methods used to gather information for this report. These sections are followed by a discussion of Native American and Alaska Native concerns about how their use of plants and animals on public lands may be impacted by BLM projects.

Applicable Laws and Regulations

Federal agencies are required to consult with Native American and Alaska Native groups on projects that may impact traditional resources used by these groups. The BLM Handbook H-8120-1 *Guidelines for Conducting Tribal Consultation* and the BLM Manual 8120, *Tribal Consultation under Cultural Resource Authorities*, provide guidance for tribal consultation about land use planning and environmental review (USDI BLM 2004). These guidance documents address providing federally recognized tribal governments and Native American individuals with sufficient opportunity to comment when traditional uses of public land might be affected by a proposed BLM action, and proper consideration of tribal concerns by the decision maker.

Several federal laws require consultation with Native Americans and Alaskan Natives. The Federal Land Policy and Management Act (FLPMA) provides the primary mechanism used by the BLM to identify places associated with traditional use, such as locations where plants and animals can be collected for cultural or religious purposes. This law requires BLM managers to involve interested parties, including Native groups, when developing Resource Management Plans and plan amendments, and ensures consistency between BLM and Tribal land use plans.

The National Environmental Policy Act (NEPA; implementing regulations at 40 CFR Parts 1500-1508) requires the BLM to preserve important historic, cultural, and natural aspects of the nation's heritage so that environmental reviews can identify potential conflicts and seek alternatives to resolve them. Consultation for NEPA can also address concerns identified under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act (AIRFA), and Native American Graves Protection and Repatriation Act (NAGPRA) concurrently.

The NHPA requires the BLM to identify and consider the effects of its actions on properties that are listed in, or eligible for listing in, the National Register of Historic Places (NRHP). These properties can include prehistoric and historic archaeological sites with cultural heritage value to Native people. Also included are Traditional Cultural Properties (TCPs), or places that are important for maintaining the continuing cultural identity of a community, and that can hold traditional cultural significance. National Park Service Bulletin 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties*, provides guidance for TCPs (Parker and King 1990). In addition, Section 800.2 of the NHPA specifies that federally recognized Indian tribes and Native groups be consulted on a government-to-government basis, recognizing their sovereign status (King 2000).

The Archaeological Resources Protection Act (ARPA; implementing regulations at 43 CFR Part 7) protects archaeological sites on public lands from vandalism and requires the BLM to consult with Native groups before issuing permits to excavate archaeological sites. The NAGPRA (implementing regulations at 43 CFR Part 10) requires the BLM to consult with Native groups or descendants when native human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered on federal lands.

The AIRFA established a policy of federal protection for traditional American Indian religious freedoms. It requires the BLM to review its programs and actions to avoid infringements on traditional Native religious practices, including access to places and use of resources. The BLM must identify the concerns of traditional Native religious practitioners relative to proposed agency actions. The Religious Freedom Restoration Act (RFRA) requires federal agencies to demonstrate "compelling governmental interest" before substantially burdening a person's religious liberty. This is a powerful standard for justifying government actions that could affect the free exercise of religions for Native people. Such exercise could involve access, use, ritual practice, and other activities related to traditional religious uses of lands and resources.

Policies enacted by the Department of Interior during August of 2012 require federal agencies to consult with Alaska Native Corporations—the entities created under the Alaska Native Claims Settlement Act (ANCSA) of 1971—on the same basis as American Indian or Alaska Native Tribes.

Some treaties reserve rights to resource use on public land. Tribal concerns about treaty rights and treaty-protected resources will be carefully considered in BLM's planning and environmental reviews for proposed program and local projects. In addition, the Alaska Native Interest Lands Conservation Act (ANILCA) provides federal protection for subsistence hunting and fishing on federal lands in Alaska.

Methods

The BLM coordinates closely with various federal, state, and local agencies, Native American tribes, Alaska Native groups, and other stakeholders. As part of the development of the 2015 PEIS, the BLM conducted public scoping to invite the public to comment on vegetation treatments with the three herbicides proposed for use on public lands. Some of the comments received pertained to the use and protection of resources used by Native Americans and Alaska Natives. Additionally, comments pertaining directly to cultural resources and Native American/Alaska Native issues that were received for the 2007 PEIS are also pertinent to treatments with the three new herbicides. These issues include protection of cultural resources, impacts on plants used for basketry, and benefits and hazards of using fire and herbicides to treat vegetation.

During scoping for the 2007 PEIS, BLM specialists indicated that Native organizations would likely defer comments until being approached with specific local projects that involve vegetation treatments. They also indicated a need for awareness about potential impacts on resources associated with reserved rights under treaty, where the rights exist, and expressed caution about asking the Native organizations about any confidential information because the BLM cannot base NEPA-process decisions on information that must stay outside the NEPA process.

A consultation letter was sent to Native American tribes and Alaska Native groups to initiate consultation about the proposed use of aminopyralid, fluroxypyr, and rimsulfuron in the BLM's vegetation treatment programs (see Appendix B of the 2015 PEIS).

The letter asked tribal governments to review materials about the three new herbicides and how they would be used, and to inform BLM officials of their concerns about the herbicides. The BLM requested information about potential impacts on subsistence plants and animals; impacts on traditional cultural properties; impacts on resources associated with reserved rights under treaty, where they exist; and specific concerns about the use of aminopyralid, fluroxypyr, and rimsulfuron. The BLM offered to provide information and review copies of the documents produced for the EIS. The BLM also noted that consultation would continue with the affected Indian tribes and Alaska Native groups during the development and implementation of special projects by BLM field offices. The responses to the letter are provided in Appendix B of the 2015 PEIS.

Research into the potential concerns of Indian tribes and Alaska Native groups was conducted by checking the websites of BLM state offices and a number of native groups. More general websites related to ethnobotany, such as those maintained by the U.S. Department of Agriculture National Resource Conservation Service, and available at http://plants.usda.gov/java/factSheet?cultural=yes, were also consulted. Because this line of research provided information that often was too general or related too specifically to particular locations or species, researchers reviewed the literature on the use of vegetation and other natural resources by tribes and native groups to develop the ethnographic statements.

Results

This section discusses the results of ethnographic and ethnohistoric research on Indian tribes and Alaska Native groups of the western U.S., including Alaska, which may be affected by the proposed program. Because the proposed program affects such a large region, the ethnographic summaries are generalized. Information pertaining to specific tribes and native groups should be discussed within future site-specific NEPA documents.

Concerns of Native American Tribes and Alaska Native Groups

Background research and initial tribal consultation did not reveal detailed information on the program-related concerns of Native American tribes and Alaska Native Groups. The following section summarizes some of the concerns that these groups may have about projects on public lands within their traditional territories.

The concerns of Native people are both general and specific and can include large-scale cultural heritage and traditional religious values, or such features as mountains or viewsheds as a cultural landscape. By contrast, concerns also can include very specific locations of plant, animal, and mineral resources, such as ceremonial places, sites where particular species are collected for subsistence, technical, medicinal, religious, or other ceremonial use, and archaeological sites that are important to cultural heritage.

Indian Trust Responsibilities and Rights

Federally recognized Indian tribes are considered to be sovereign governments by the U.S. government. They are considered to have an inherent sovereignty over their people and land, which existed prior to the formation of the U.S. government. Over four hundred treaties were signed between Indian tribes and the U.S. government, which usually gave the U.S. government large tracts of the tribe's lands; in exchange, the tribes reserved certain lands ("reservations") and their aboriginal rights over those lands. Many treaties also reserved certain rights of the tribes to access the territory outside the reservation for such activities as hunting, fishing, and plant harvesting. When dealing with tribal governments, the BLM will treat the relationship as one of government-to-government. It should be noted that some Indian communities are

seeking federal recognition, but they are not subject to government-to-government status until they receive this recognition.

The main basis of the government-to-government relationship between the U.S. and the tribes is the U.S. government's doctrine of trust responsibility. The trust doctrine directs federal agencies to protect tribal interests as they carry out their duties. This responsibility is based on the treaties, in which the U.S. promised to protect the right of the tribes to exist on the lands that they reserved for themselves. The U.S. government also holds the legal title for much of the Indian land, in trust, for the benefit of the tribes and the tribal members. Beginning with the 1887 General Allotment Act, the U.S. government took over the role of trustee for an extensive amount of Indian land, leasing the land for logging, oil, mining, and other uses.

In some modern cases, courts have made a distinction between a "general trust responsibility" and a "specific trust responsibility." General trust responsibilities arise when an interaction between an agency and a tribe is not addressed by any specific statute, regulation, or treaty. Specific trust responsibilities are created from treaties, executive orders, and specific statutes that address the relationship between tribes and the federal government. Whether specific or general, the trust doctrine adds another obligation for agencies such as the BLM to follow while carrying out their duties (National Environmental Justice Advisory Council 2000).

Some Indian tribes have treaty-protected rights to activities and resources on public lands. The specific rights and the way in which they are exercised differ among the tribes and the BLM-administered units. Because tribes are very concerned about protecting their treaty rights to activities and resources, the potential effects of the proposed vegetation treatment program on such rights will be of great concern to the affected tribes. In general, however, Native people are concerned about maintaining habitats and resources in a healthy, natural state.

Opportunities of Native Americans and Alaska Natives to Pursue Traditional Subsistence Lifeways, Practices, and Activities

Indian tribes and Alaska Native groups use lands that could receive vegetation treatments that utilize aminopyralid, fluroxypyr, or rimsulfuron. This includes treaty-protected use that primarily applies to and occurs in the northwestern states. Although precise information is not available, land use is varied and includes gathering plant products, hunting, fishing, grazing livestock, visiting important places, conducting ceremonies, and teaching cultural ways to younger people. Many Native people live near their ancestral lands and feel attached to their traditional use areas, archaeological sites, and ancestors' burials. Continuing their traditional practices on the lands, visiting important places, and teaching cultural ways keep their traditions alive. The BLM recognizes the importance of Native American traditional use by providing access to lands and by considering such use in management and project planning. One example of an area where the BLM recognizes the importance of Native American use and resources is the Biscuitroot Cultural Area of Critical Environmental Concern (ACEC) in the Harney Basin of Oregon. The purpose of this ACEC is to promote and maintain traditional roots for the local tribes to harvest (Hanes 1995).

The majority of the information in this report on Native American and Alaska Native plant, animal, and mineral use is taken from reports of ethnographic observations made shortly after European, Russian, or American contact. Contemporary plant, animal, and mineral use often is not as extensive as that documented in earlier ethnographies, but in recent years there has been a rejuvenation of interest among the tribes in their traditional practices using those materials. As interest continues to grow and tribes seek access many plants, animals, and minerals that have not been sought for generations may once again be sought and collected on tribal lands, as well as BLM and other public lands. Therefore, while this report may refer to some plant, animal, and mineral use as past activities, it is recommended that the materials mentioned below be treated as if they were being used contemporarily.

Management of Vegetation by Native Americans

Native Americans and Alaska Natives have historically altered the landscape in various ways in order to increase plant production, attract and promote valued wildlife species to the area, and to produce a desired product. The deliberate use of controlled burning is probably the best-known and widely applied method of managing vegetation, although irrigation, thinning, pruning, replanting, and tilling the ground also were utilized.

Native people have used fire to promote a diversity of habitats, increasing the "edge effect" that yielded a variety and abundance of plant and animal resources. Some of the various objectives of intentional burning include: management of wild and agricultural crops; improvement of plant growth and yields; improvement of browse for game animals; fireproofing of selected areas; maintenance of prairie or grassland areas; collection of insects; management of pests; and maintenance of travel conditions (Ames and Maschner 1999, Williams 2001).

Among groups that harvested seed crops, burning often occurred immediately after seed harvest, generally from July to October, depending on the crop. In some places, the burning also was used to drive game from an area for coordinated hunting. For example, the Luiseño of California used fire not only for crop management practices, but also as a tool to conduct community rabbit drives (Bean and Shipek 1978).

In the pine-fir forests of eastern California, fires were intentionally set to promote the growth of wild seed crops, and to clear the forest floor of debris for easier hunting. Likewise, in the redwood forests of the north coast of California, the prairies bordering the forests often were burned to prevent the forest from encroaching onto the prairie, and to promote the growth of plants valuable to humans and their prey. Burning sometimes was used to clear and fertilize an area to raise tobacco, and to promote the growth of materials used in basket making (Baumhoff 1978).

Burning to promote the growth of tobacco was especially common in certain regions. A study conducted in the Great Basin revealed that tobacco was the main or secondary reason for burning among 37 of 39 groups (Doolittle 2000). Other groups manipulated tobacco using other methods. The Shasta and the Tubatulabal encouraged the growth of tobacco plants by thinning their numbers or by pruning.

Multiple groups in California and the Great Basin have planted and cultivated a wide range of crops, including tobacco, grasses, onions, root and tuber crops, and seed-bearing crops. The Cahuilla were observed planting palm trees in rows, as well as burning palm trees to kill the bugs that lived on their tops (Doolittle 2000). In the Pacific Northwest, Coast Salish people around the Puget Sound protected certain root crops by keeping the ground loose around the crops for easier digging. After harvest, the remaining plants were burned off, most likely to kill the roots of competing plants. In the Southwest, groups used various methods to increase the productivity of agricultural crops of corn, squash, and beans. Methods of soil and water control included irrigation ditches, terraces, linear grids, field borders, and check dams (Plog 1979).

Important Plant Uses and Species Used by Native Americans and Alaska Natives

Although universally important, plant use by Native American and Alaska Native groups is extremely varied, both by region and by group. Subsistence use of such plant products as roots and tubers, bark, stalks, leaves, berries, mushrooms, and nuts is essential to native people. Vegetation also provides habitat for culturally and economically important wildlife species.

Most Native American and Alaska Native groups constructed a variety of residential shelters and other buildings such as ceremonial lodges and sweat houses using a combination of materials, usually employing a locally derived hardwood as part of the structural frame. The frames were then covered with other readily available materials, such as planks, mats, bark, brush, and other materials. Wood has been carved into implements and ceremonial items, and also burned to cook food, warm dwellings, and facilitate toolmaking. Trees have been fashioned into various types of watercraft and terrestrial hauling devices, and also carved into massive ceremonial items.

The use of plants for medicinal purposes is widespread, as is the use of tobacco. Plants such as tobacco sweet grass, cedar, and sage, have seen important religious and other ceremonial uses. The use of grasses and other plant resources for basket, box, and tool making also can be observed in the cultures of numerous Native American and Alaska Native groups.

Plant products also have been used to make textiles, cordage, and matting, as well as to tan hides. The use of plant dyes, paints, and soaps is widespread.

Ethnographic Overviews by State and Cultural Area

The following ethnographic overviews are organized by states and culture area as shown in Table 1. A culture area is a geographic region in which the tribes share many common cultural traits. In North America, there are generally considered to be 10 culture areas, of which 7 are included here (Figure 1). It is important to keep in mind that the contemporary borders between states did not exist in aboriginal times and have little bearing on plant and animal distributions and indigenous land use patterns and resource exploitation. Thus, there is almost no equivalence between states and culture areas; portions of most states occur in more than one culture area. For this discussion, a state having land in a particular culture area will not be discussed here as part of that culture area.

The discussions below focus on plant and animal resources traditionally used by tribal and native groups of the various regions. The BLM should consult with the specific tribes within each culture area to discuss the contemporary use of resources, since there is little documentation of current practices.

Plains

The Plains lie within the Temperate Steppe Ecoregion, also referred to as shortgrass prairie (Bailey 1995). Extending south into Texas, the region is bounded to the north by the Canadian border, to the west by the Rocky Mountains, to the east by the Great Lakes and the eastern woodlands. Plains states include portions of the states of Montana, North Dakota, South Dakota, Wyoming, Nebraska, Colorado, Oklahoma, New Mexico, and Texas. Steppe grassland vegetation dominates, with the western half of the region drier due to the rain shadow effect of the Rocky Mountains. Historically, the shortgrass prairie supported vast herds of bison, which constituted the primary game animal for tribes inhabiting the region. Other game species included bear, antelope, elk, deer, rabbits, and birds.

Numerous human migrations have occurred in this region over the millennia, but the principal linguistic groups occupying the area included the Algonquian, Athabaskan, Caddoan, Kiowa-Tanoan, Siouan, and Uto-Aztecan. Among these groups, multiple fissions and fusions created distinct tribal entities, such as the Crow and Hidatsa Siouan groups of the northern Plains who split in the eighteenth century (Kehoe 1992). Plains tribes have had close connections to groups in other regions through direct trade or seasonal transhumance, the movement of livestock from one area to another. Groups in the southern Plains traded meat for the agricultural products of the Southwestern groups, while groups in the Great Basin (Shoshone) and Plateau (Nez Perce and others) made seasonal trips to the northern Plains to hunt bison.

Plants used by Plains groups included prairie turnip, groundnuts, ground bean, sunflower, Jerusalem artichoke, serviceberries, American lotus, sand dropseed, vine mesquite, prickly pear cactus, mesquite beans, and camas, as well as cultigens such as maize, beans, and squash (Maxwell 1978, Wedel 1983, Wedel and Frison 2001). Plants have been used for a variety of purposes. Tobacco has been smoked, sometimes in religious ceremonies.

TABLE 1
States, Ecoregions, and Culture Areas for BLM Vegetation Treatment Areas

State	Ecoregion Division	Culture Area
Montana, North Dakota, South Dakota, Wyoming, Nebraska, Colorado, Kansas, Oklahoma, New Mexico, Texas	Temperate Steppe	Plains
Nevada, Utah, Wyoming, Oregon, Idaho, California	Temperate Desert	Great Basin
Arizona, New Mexico, Colorado, Utah, Texas, California	Subtropical Desert/Steppe	Southwest
California	Mediterranean	California
Washington, Oregon, Idaho, Montana	Temperate Desert/Steppe	Plateau
Oregon, Washington, Alaska, California	Marine/Mediterranean	Northwest Coast
Alaska	Subarctic/Tundra/Marine	Alaska

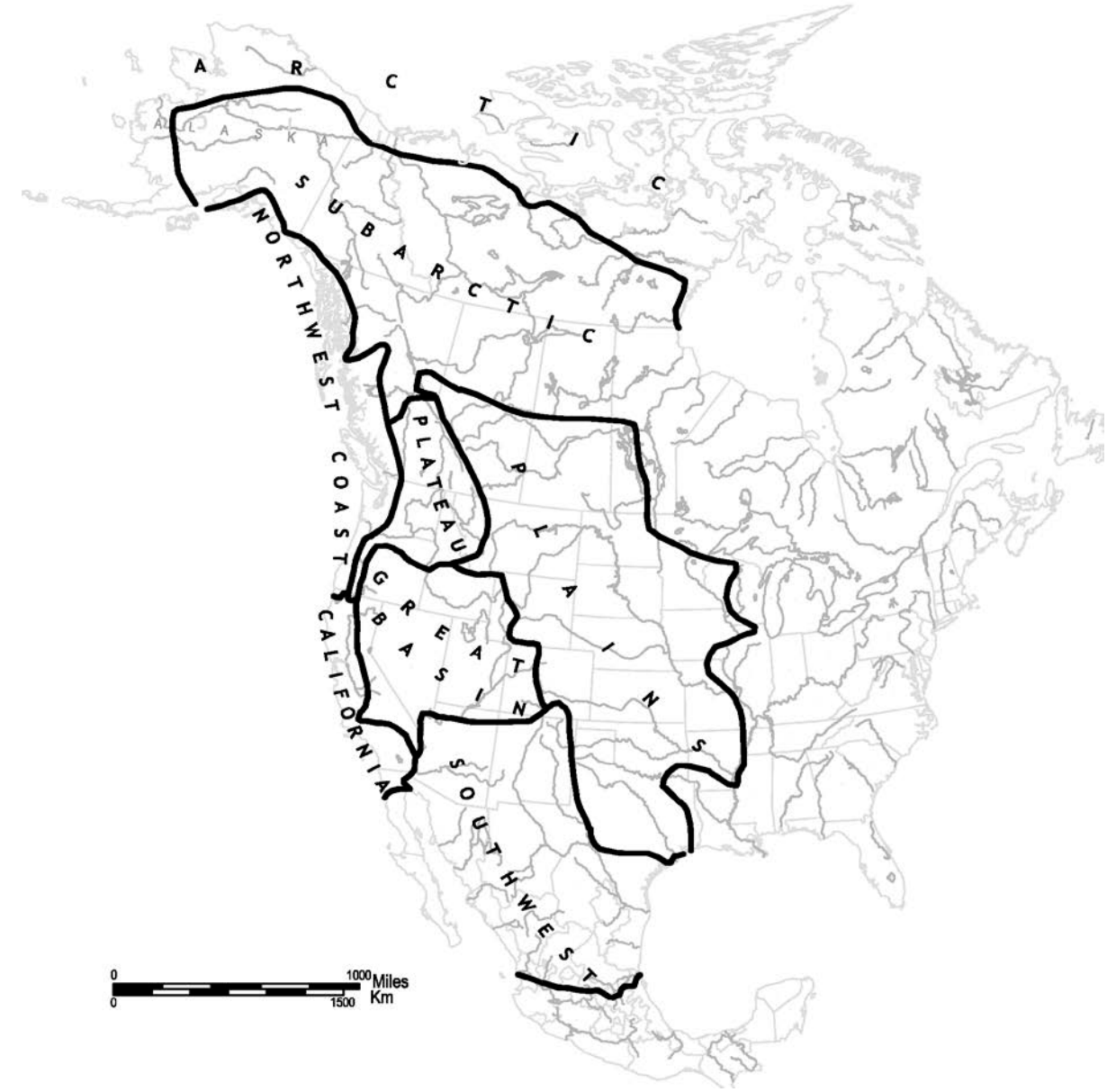

Figure 1. Native Areas of Western North America (Washburn 1988).

Cottonwood and willow provide fuel, as well as low quality building material. Oak, elm, and huckleberry were the best quality woods for most buildings, and the long poles of pine have been used for teepee frames. Willow also was used for boat frames that were covered with hides, while split willow shoots, box elder bark, nettles, and peeled sandbar willow have been used for baskets. A black dye derived from walnuts is used to decorate baskets. Roasted and ground mescal beans, and sweetgrass bundles have been used for medicinal purposes. Bowls and other carvings have been made from box elder; sage has been used to help whiten hides; and bows generally were made from cedar, ash, and hickory (Brown and Irwin 2001, Voget 2001, Wedel and Frison 2001, Wood and Irwin 2001).

Hunted animals included deer, elk, bear, mountain sheep, rabbit, antelope, and bison. Prior to equestrian culture, Indian people hunted bison by driving the animals off cliffs or into ravines. With horses, Plains groups shifted their subsistence patterns from sedentary part-time farming, plant gathering, and hunting to mounted hunting focused on the migratory herds of bison. By the late 1700s, the majority of the groups occupying the Plains kept horses, and the dependence on plants for subsistence waned (Maxwell 1978). Pressure from Europeans initially generated movements of woodland groups onto the Plains, most notably the Siouxian speakers in the 1700s.

Great Basin

This region encompasses Nevada and Utah, and includes portions of eastern California, southeastern Oregon, southern Idaho, with use areas extending into western Wyoming and Colorado. The Temperate Desert Ecoregion dominates the area, characterized by low annual rainfall and strong temperature contrasts between seasons (Bailey 1995). Elevation is a significant ecological control in both low and high deserts. This discussion focuses on the high and low desert areas, but the region's multiple Native American groups often occupy overlapping geographic zones. In the high desert vegetation is dominated by sagebrush and shadscale shrublands, with montane zones that include pinyon-juniper and ponderosa pine woodlands. The low desert includes areas of the Mojave Desert and Colorado Plateau, with expanses of sparse chenopod, yucca, and creosote; mesquite in washes; and upland stands of pinyon-juniper and oak.

A wide variety of edible plants occur throughout both the high and low desert, including grains and seeds from native amaranths, chenopods, sunflowers, ricegrass, sand dropseed, bluegrass, and wild rye and roots, bulbs or leaves of wild onion, sego lily, yellow bells, Indian potato, miner's lettuce, sweet cicely, and violets. Berries include chokecherry, currants, blue elderberry, Oregon grape, wild grape, wild rose, serviceberry, ground-cherry, and silver buffaloberry.

High Desert

Shoshone and the Northern Paiute groups occupy most of the Great Basin high desert region. Anthropologists classify the Shoshone into three groups: Northern Shoshone/Bannock, Eastern Shoshone, and Western Shoshone (Steward 1937). Prior to the acquisition of the horse in the early 1700s, family groups on the northern margin of the Great Basin fished for salmon in the spring and dug camas roots in the summer. They traveled to the mountains of southeastern Idaho and northern Utah to hunt deer and elk in the fall. After the development of equestrian culture, the group ranges and territories extended into Wyoming and Montana in seasonal pursuit of buffalo, and well into Oregon for rendezvous with Northwest tribes. An important staple throughout much of Nevada and northern Utah was the single-leaf pinõn pine nut (Murphy and Murphy 1960, Murphy 1986). Other important plant resources include chenopod, blazing star, and grass seeds; as well as southern desert species of mesquite, salvia, various cactus, and gourds (Egan 1917; Steward 1939b, 1997; Thomas et al. 1986).

The Western Shoshone territory extended from Death Valley north into northwestern Utah. The Western Shoshone often wore hats made from twined sage bark or willow, and clothing made from bark, grass, or fur (Thomas 1986). Throughout both the high and low desert, various plants have been used for basketry, including yucca, juniper, tule, cattail, sagebrush, turkey beard, swamp grasses, Indian hemp, milkweed, cedar, cliff rose, white sage, young willow, sumac, and squaw bush (Adovasio 1986, Fowler 1986).

The Eastern Shoshone territory ranges primarily throughout an area covering the western half of Wyoming; however, the groups covered a much more extensive area when using horses to hunt buffalo (Murphy and Murphy 1960, Murphy 1986, Shimkin 1986). Elsewhere in the region, large game is relatively scarce, with regularly hunted species limited to bighorn sheep, antelope, deer, mountain lion, and wolf (Steward 1941, Pendleton and Thomas 1983, Thomas 1983). Small game and insects, which traditionally provided most of the animal protein in the

diet, included rabbits, badgers, porcupines, pocket gophers, ground squirrels, prairie dogs, woodchucks, muskrats, mice, chipmunks, weasels, some reptiles and fish, owls, hawks, eagles, crows, doves, mockingbirds, sage hens, quail, waterfowl, grasshoppers, crickets, cicadas, ants, bee eggs, and larvae (Fremont 1845; Powers 1877; Egan 1917; Steward 1940, 1941, 1997; Stewart 1980; Simpson 1983).

The Northern Paiute territory ranges from southeastern Oregon to southern Nevada. The Northern Paiute subsistence lifestyle was very similar to that of the Western Shoshone, but with less access to low desert resources and single-leaf pinõn. A focus on important fisheries and marshes supplied chi-ui, cutthroat trout, suckers, and waterfowl (Fowler 1986).

Low Desert

A number of tribes lived in the large aboriginal territory extending from the Mojave Desert of California east onto the Colorado Plateau. Some of these tribes were the Utes, Southern Paiute, Kawaiisu, Owens Valley Paiute, and Panamint (Kehoe 1992). As with groups in the high desert, band names often were derived either from the geographical location inhabited by the band or from the primary food resource utilized by the band (Steward 1939a; Conetah 1982; Callaway et al. 1986; Janetski 1991). Generally, the seasonal migrations of the Ute and Southern Paiute involved traveling to the deserts and valleys in the winter and to the mountains in the summer. With the introduction of the horse, these groups began utilizing larger areas, including the Plains, and adopted more of the Plains cultural pattern, such as buffalo hunting and the use of long-pole tepees (Steward 1974, Conetah 1982, Janetski 1991). People at the southwestern edge of this area were far more stable, with semi-sedentary control over narrow Great Basin valleys that supported emergent horticulture. From this position, they traded with Yokuts and Mono groups on the western side of the Sierra Nevada in California, and interacted with the mobile Great Basin groups to the north and east.

Plant species utilized by low desert bands include berries—especially buffaloberries, chokecherry, currants and gooseberries, elderberries, raspberries, serviceberries, squawberries, and strawberries—either eaten fresh or dried and stored. Roots of the sego, cat-tail, and bullrush were collected using digging sticks, and specific gathering and processing methods developed to harvest staple foods of the single-leaf or Colorado pinõn pine nut, mesquite beans, some cactus and mescal fruit, and yucca fruit (Kelly 1964, 1976; Kelly and Fowler 1986). Jimsonweed, tobacco, nettle, and red ants are the main traditional medicines of the Kwaiisu (Zigmond 1986). The Ute were observed making cordage from sagebrush bark, juniper bark, dogbane, yucca, and nettle, while tule reeds have been used to make balsa rafts, mats, and blankets (Calloway et al. 1986). The Moapa Paiutes continue to use desert fan palms for baskets, food, and shelter (Moapa Memories 2002).

Hunted animals include deer, bears, mountain lions, coyotes, foxes, wildcats, porcupines, beavers, marmots, and badgers. Additional smaller animals and insects utilized by the low desert groups include rock squirrels, prairie dogs, squirrels, chipmunks, wood rats, mice, gophers, ducks, flickers, mourning doves, sage hens, wild turkeys, quail, owls, eagles, bird eggs, fish, lizards, snakes, locusts, ant larvae, and caterpillars (Kelly 1976, Kelly and Fowler 1986, Kroeber 1976, Laird 1976).

Southwest

The Southwest culture area lies within the Subtropical Steppe Ecoregion and Subtropical Desert Ecoregion, a dry area that is marked by annual water deficiency (Bailey 1995). The dominant vegetation zone of the region is desert shrub and other shrubs, with niches including barren zones, ponderosa pine forests, and pinyon-juniper forests. The region includes Arizona and New Mexico, and portions of Colorado, Utah, Texas, and California. Domestication of plants and animals has a long history among the Southwest cultures. Of particular importance were maize, beans, squash, and cotton in pre-European contact times; and fruit trees, cattle, horses, sheep, and goats following Spanish entry into the region. Since Native American groups often have overlapping geographic zones, this discussion is divided into the three main groups that occupy the region.

Pueblo

The Pueblo Indians today are descendants of the cliff-dwelling Anasazi, who occupied the Four Corners area of the Southwest for at least 1,500 years before the arrival of the Spanish. The Hopi of northern Arizona linguistically are Shoshonean, part of the Uto-Aztecan family that includes the Piman subgroup (Pimas and Papagos of southern Arizona) of the Sonoran branch. Zuni Pueblo in western New Mexico is unusual in that it has no linguistic relative in the Southwest, but has developed over the same period. The seven Keresan pueblos, extending from west-central New Mexico to

the Rio Grande, also are a linguistic isolate. Eleven of the remaining Rio Grande pueblos speak one of three branches of the Tanoan language. While linguistically variable, the Pueblos developed quite similar settlement and subsistence patterns and cultures through time. They are most recognized for living in stair-stepped adobe structures and being excellent farmers at the time of contact, patterns that continue today.

The people of the Pueblos probably are best known for their agricultural development of corn, beans, and squash. Corn first appeared in the region between 5,000 and 4,000 years Before Present (B.P.), but beans and squash did not appear until 2,000 B.P. It wasn't until between 1,200 and 1,000 B.P. that the majority of the Pueblos' diet came from agricultural production (Plog 1979). Along with growing domesticated plant species, the Pueblo people also developed a seasonal gathering strategy for wild plants, which were mainly available between April and October. Green plants such as amaranth, chenopods, wild onion, wild celery, and sage were gathered along with grass seeds, roots, juniper berries, pine nuts, acorns, and walnuts. Agave, prickly pear, cholla, and other cacti also were gathered when available (Bodine 1979, Plog 1979).

A variety of other plants have been used for clothing, shelter, medicine, and other functions. Yucca fibers have been used for basket making; cotton is used for weaving; small palms such as istle or hemp have been used for blankets; yucca roots were used for hair washing; and gourds were used as containers and water ladles. More recently, some modern Pueblos have participated in the Peyote religion (Bodine 1979, Kennard 1979, Plog 1979, Schroeder 1979).

Yuman Group (Colorado River Indian Tribes)

The Yuman group is composed of the Cocopa, Quechan, Maricopa, Mohave, Walapai, Havasupai, and Yavapai. These groups live in much the same areas today as they did at the time of Spanish contact, and were likely there long before. Some of the Yuman groups living along the Colorado River and up to the Middle Gila River in Arizona traditionally have cultivated corn, squash, pumpkins, melons, beans, and cotton in the floodplains; hunted small game such as rabbits; and fished (Maxwell 1978). Important plant resources included prickly pear, saguaro, mesquite, stick-leaf, mescal, yucca, piñon nuts, walnuts, sunflower seeds, juniper berries, and sumac berries.

Housing of riverine groups traditionally consisted of roofed, open-sided ramadas in the summer and semi-subterranean wattle-and-daub or sand-covered thatch in the winter—both constructed with a post and pole framework. Upland groups living on or near the Colorado Plateau practiced agriculture in the canyons in summer, and spent the fall and winter hunting deer, antelope, bighorn sheep, and rabbit, and gathering piñon nuts, mescal or agave, and other wild plants. Housing of upland groups was similar to that of the riverine groups, but winter housing was more substantial to withstand the elements, some incorporating rock shelters or caves.

The Yuman peoples have used plants and plant products for a variety of purposes: mescal fibers to make hairbrushes, pine pitch for sealing baskets, yucca fiber for sandals, willow and juniper bark for clothing, and cactus needles for tattooing. They made bows from desert mulberry, and arrows from cane. Willow shoots, sumac twigs, devil's claw, and cottonwood have been used for basketry (Khera and Mariella 1983, Schwartz 1983).

Apacheans

The Apacheans in the Southwest include the Navajo, Chiricahua, Jicarilla, Kiowa-Apache, Lipan, Mescalero, and Western Apache. These Southern Athapaskan or Apachean-speaking tribes occupied much of eastern Arizona, portions of New Mexico around the Pueblos, southeastern Colorado, western Oklahoma, and parts of western and southern Texas. Before arriving in the Southwest about 700 years ago, most Apacheans traditionally were hunters and gatherers. Following contact with the indigenous Pueblo peoples, the Navajo readily adopted maize, bean, and squash agriculture. The Western Apache, Jicarilla, and Lipan cultivated crops less intensively, and the remaining groups did not adopt any agricultural practices. With arrival of the Spanish, the Navajo readily adopted the raising of horses, sheep, goats, and cattle, and cultivated orchards and other introduced crops. The gathering of native plants by Apacheans in various areas included agave (mescal) crowns, saguaro cactus fruit, yucca, prickly pear, mesquite beans, acorns, pinyon nuts, juniper berries, sumac berries, chokecherries, various other berries, grass seeds, wild root crops, and various greens or young plants.

Yucca roots were crushed to make shampoo, while the sap of Spanish bayonet, as well as other plants, has been used for dyes. Sourberry, Wright's willow,

martinia, bata mota, and other plants have been used for basketry. At least 29 species of plants have been used for medicinal purpose. The Navajos lived in cribbed-log, dome-roofed structures called hogans, and moved summer household activities to open air ramadas, lean-tos, or less formal shades or brush enclosures. The remaining Apacheans used wickiups in mountainous areas and tepees in the plains. Hunters have sought bison on the plains, elk and bighorn sheep in the mountains, and deer, antelope, cottontail rabbit, wood rats, squirrels, and opossum in various areas. Some of the tribes also hunted various wild birds, peccary, and fish; certain furbearers were taken only for their hides.

California

California, west of the mountains, lies within the Mediterranean Ecoregion, a zone with alternating wet and dry seasons at the transition between dry desert and wet coastline (Bailey 1995). The state can be divided into three main geographic regions: coastal, Central Valley and Sierra, and southern desert. Vegetation zones within the state vary from pine and oak forests in the coastal region, oak-covered hills through much of the Central Valley, pinyon-juniper forest in the east, and cactus and shrubs in the southeastern desert. Animals figure prominently in the spiritual systems of many Native American groups from this area, but bears are especially important and many groups have a category for "bear doctors" (Willard 1995). Jimson weed has been an important component of ritual life for many California groups. Because Native American groups often utilize overlapping geographic zones and California was home to tremendous cultural diversity, this discussion covers the major geographic regions. Some groups from the northern coast region of California are generally included in the Northwest Coast culture areas, and a description of their cultural pattern is found in the section on that area.

Coastal

The wide variety of plants available along the northern and central coast of California provided for a multitude of uses, including building materials, basketry, clothing, and medicine. The redwood tree has been used for the construction of permanent dwellings and large canoes, while its bark was used for both men's and women's clothing. In areas where redwood does not grow, juniper and tule reeds often were used for shelters. Tule reeds have also been used for boats, as well as for basketry, clothing, and matting. Additional plants used for basketry include hazelnut tree shoots, beargrass, black maidenhair fern, giant fern, pine roots, and bulrush roots. Green oak galls, burned pepperwood berries, tan oak bark, and alder bark have been used to make dyes for baskets and clothing. Medicinal plants include tobacco, which has been used for recreational, spiritual, and medicinal purposes; angelica, which helps sores heal; and pepperwood leaf, which soothes toothaches. Other plant uses along the coast include ashwood for tobacco pipes, yucca for netting, and oak or alder roots for wooden plates and bowls. The Pomo were observed rubbing angelica and pepper tree leaves on their bodies before hunting (Loeb 1926).

The central and northern coastal areas provide habitat for many crustaceans, shellfish, and sea mammals, and the numerous rivers are habitat for spawning fish such as salmon, sturgeon, trout, and perch. Groups having access to a wide variety of resources in northwestern California, such as the Hupa, the Yurok, and the Karok, share many traits with the cultures of the Northwest Coast, including sedentism, high population density, social stratification, and craft specialization. Farther south, the Coast Miwok, Pomo, Costanoan, and Chumash have long exploited both the central coast marine resources and inland oak forests, where they collect acorns and hunt large and small game. Over 100 species of fish inhabit the rich kelp beds off the coast, in addition to numerous marine mammals, including whales, dolphins, sea lions, seals, and otters (Maxwell 1978). The rich intertidal zone provides shellfish such as mussels, abalones, oysters, scallops, and clams.

Central Valley and Sierra

In the valleys between the Sierra and coastal mountain ranges, riparian corridors and foothills rich in oak groves provide acorns, a staple in the diet of many California tribes, along with hazelnuts, pine nuts, and buckeyes. This region also provides habitat for deer, elk, rabbit, bear, and many species of berries, bulbs, tubers, and roots. Tule growing in watersheds and marshes has been an important component of material culture, specifically for basketry, matting, dwellings, and watercraft (Levy 1978; Wallace 1978a, b). Milkweed, Indian hemp, dogbane, and inner willow bark were used for cordage and rope. Tobacco has been commonly used, and horehound is boiled and drunk for medicinal purposes.

Migrating salmon are an important food source for year-round use. Numerous lakes and valley marshes

provide habitat for migrating waterfowl such as ducks and geese. The various bands associated with Yokuts and Miwok are the principal groups who traditionally inhabited the region. These people utilize many species of fish including lake trout, chubs, perch, and suckers, as well as the occasional salmon and steelhead (Wallace 1978b). Using snares, nets, arrows, and decoys, people hunt waterfowl such as geese, ducks, and mud hens. Turtles and mussels also provide an important contribution to the aboriginal diet.

Desert

Southeast California is a desert environment that extends to the coast. Tribes such as the Cahuilla, Serrano, Gabrielino, and Luiseño have traditionally practiced a subsistence pattern very similar to Great Basin groups. Important resources for these groups have included coastal resources, but also inland deer, rabbit, rodents, and insects, such as locusts and grubs. Additional staples of the diet include wild grass, mescal seeds, pinyon nuts, and mesquite beans, which can be ground into flour and made into cakes. (Barrows 1900, Kelly1964, Kroeber 1976).

Dwellings were constructed from a wide variety of plants, including juniper, great manzanita, greasewood, mountain oak, and mesquite, with tule, carrizo, fern, bark, or reeds often used for thatching. Tule, sumac, and squawbrush, as well as a variety of rushes and grasses, have been used for basketry, while yucca and mescal have been used for cordage. Hundreds of plants have been documented for medicinal and physical enhancement uses, including tobacco, jimson weed, wormwood, creosote, and sumac (Bean and Saubel 1972). The inner bark of willow and cottonwood trees was used for women's dresses; mescal and yucca fibers were used for clothing and sandals; and mesquite bark was used for diapers. The creosote bush and milkweed were used for adhesives, and yucca root often was used to make soap.

Plateau

The Plateau lies within the Temperate Desert and Temperate Steppe Ecoregions, and includes portions of the states of Washington, Oregon, Idaho, and Montana (Bailey 1995). The primary vegetation zone of the Plateau is sagebrush steppe, with forests of Douglas-fir and ponderosa pine existing in the mountainous zones along the periphery. Seasons are marked by hot, dry summers and cold winters. The Columbia River and its tributaries provide the major resource exploitation areas. Anthropologists divide the inhabitants of the Plateau into two main linguistic and ethnic groups: Salish and Sahaptian speakers. However, the one linguistic isolate along the northeast edge off the Plateau is the Kootenai, whose Algonquian language differentiates them from the surrounding Salish speakers.

Due to predictable and abundant annual plant and animal resources, Plateau groups have been more sedentary than groups in the Great Basin or the Plains, a characteristic shared with groups in California and the Northwest Coast. The hallmark of Plateau culture is intensive salmon fishing, which is the most significant resource in the Plateau, with massive annual migrations up the Columbia and its tributaries from spring through fall. Significant plant resources include root crops of camas, bitterroot, lomatium, balsamroot, and yellowbells. For many Plateau groups, plant resources constitute a large portion of the diet, as well as supplying shelter, clothing, basketry, medicine, and many other functions. Berries are intensively collected, and fire often has been used to maintain the production of berry patches (Chatters 1998).

Southern Plateau

The Sahaptian speakers in the southern Plateau include the Northwest Sahaptin, Northeast Sahaptin, Columbia River Sahaptin, and Nez Perce. Their non-Sahaptian speaking neighbors include the Chinook, Cayuse, Molala, and Klamath. These groups occupy the lower portion of the Columbia River and its tributaries, and the adjacent upland areas, including central, southeastern and southwestern Washington State, and north central and northeastern Oregon, including the Blue Mountains.

Traditionally, dwellings were semi-subterranean and constructed from large mats made of tule bulrushes or cattail reeds sewn together with Indian hemp (Schuster 1998). The mats were overlapped and attached to the wooden frames of lodges, constructed from lodgepole pine, cedar, or driftwood. Winters were spent in riverine villages, while the spring and summer has been a time for gathering edible plants, including camas, bitterroot, lomatium, mariposa lily, wild carrot, Indian potato, parsley, Indian celery, onion, tree lichen, hazelnuts, acorns, and pine nuts. Important berries include currants, gooseberry, dogwood, serviceberry, chokecherry, huckleberries, hawthorn berries, and strawberries (Hunn 1990, Hunn and French 1998).

Douglas-fir and ponderosa pine were the main firewood, although alder wood has been preferred for cooking or smoking salmon. Douglas-fir saplings were used for fish net poles, greasewood twigs were used for sewing needles, Indian hemp was used for fishing nets and other weaving purposes, and cattail leaves were used to weave bags. Rosewood was used in cradleboards and hung in homes to repel ghosts. Mullein, willow bark, and other plants have been used for medicinal purposes, while tobacco has been smoked in religious ceremonies (Brunton 1998, Hunn and French 1998).

Sahaptian speakers and their neighbors have traditionally gathered at prime fishing locations during the annual salmon migrations and harvested large numbers of the fish for year-round consumption. Besides salmon, other commonly utilized fish included trout, suckers, whitefish, and sturgeon. The major hunted land mammals were bison, elk, deer, antelope, caribou, and moose. Beaver, mountain goat, gopher, bear, lynx, and wolf were hunted for food as well as for fur. Cranes, duck, geese, and eagles were valued for feathers and meat (Brunton 1998, Hunn and French 1998).

Northern Plateau

The northern Plateau is occupied by Salish-speaking groups that include the Spokane, Colville, Coeur d'Alene, Wenatchee, Sinkayuse, Chelan, Sanpoil-Nespelem, Kalispel, Pend d'Oreille, Southern Okanagan, Methow, and Flathead. The neighboring Kootenai represent a language isolate, likely Algonquian. These groups occupy the upper portions of the Columbia River and its tributaries, including north-central and northeastern Washington State, northern Idaho, and parts of Montana. While salmon has long been the major component of the subsistence pattern, salmon numbers are considerably lower in the northern Plateau. Consequently, Salish group populations are smaller and their societies generally have been less stratified and less complex than the groups occupying the southern Plateau.

Plant resources utilized by northern Plateau groups include camas, bitterroot, balsam, lily corms, prickly pear fruit, sunflower seeds, hazelnuts, mint, mushrooms, tree cambium, green shoots, and berries, especially huckleberries, chokecherries, and serviceberries (Chance 1986, Kennedy and Bouchard 1998, Miller 1998). Tule reeds and cedar bark were used for covering structures, and tule also was used for matting, bedding, and to shroud corpses. Baskets and bags have been made from birch bark, cedar bark, cedar and spruce roots, and Indian hemp, which was used for cordage. Cottonwood bark was used for underground storage casks; white pine bark was used for making canoes; willow shoot mats were used for drying salmon; and maple boughs were used for snowshoe frames. Huckleberries and the inner bark of Oregon grape have been used to make dyes for baskets, and sunflower root was used for making shampoo (Kennedy and Bouchard 1998, Miller 1998). To enhance production of usable plant material, resource habitats often were annually modified through the use of controlled burning (Ross 1998).

Hunting has played a more prominent role in Salish subsistence systems than in those of the Sahaptian groups (Kennedy and Bouchard 1998). In historic times, the Flathead Salish and their neighbors the Kootenai traveled to the Plains to hunt bison (Brunton 1998).

Northwest Coast

The Northwest Coast lies primarily within the Marine Ecoregion, a zone characterized by abundant rainfall and a narrow range of temperature fluctuation. The Northwest Coast extends from southeastern Alaska south along the Canadian coast through Washington and Oregon to northern California, with the northern portion of California lying within the Mediterranean Ecoregion (Bailey 1995). The dominant vegetation consists of cedar, spruce, hemlock, and fir forests, with redwoods present in northern California. The region's stable resident and annual maritime resources were crucial in the development of densely populated, socially stratified societies (Kehoe 1992).

In California, groups manifesting a Northwest Coast cultural pattern include the Yurok, Klamath, and Modoc. In Oregon, they include the Tillamook, Yaquina, Siletz, Alsea, Siuslaw, Lower Umpqua, Coos, and Tutuni. The Chinook have flanked the Columbia River in Oregon and Washington. The Chehalis, Quinault, Queets, Quilete, Hoh, and Makah have occupied southwest Washington and the Olympic Peninsula, while the Puget Sound area has been occupied by Salish groups such as the Snoqualmie, Snohomish, Skagit, Skykomish, Puyallup, and Nisqually. In Alaska, the Tlingit and Haida have lived on the islands and limited parts of the mainland of the southeastern portion of the state (Kehoe 1992).

The Northwest Coast supports a variety of plant food sources in many different forms. Edible ferns include

bracken, sword, and lady ferns. Edible lilies, onions, camas, and other roots and rhizomes were commonly harvested. The tuber of the wapato has been found abundantly in the lower Columbia River valley. Over 40 species of fruits and berries have been available throughout the region, including gooseberry, salmonberry, huckleberry, elderberry, and wild strawberry. Important leaves and shoots come from salal, horsetail, ferns, stinging nettle, and salmonberry. Where available, certain types of algae, seaweed, and kelp also have been used. Available edible nuts include hazelnuts, acorns, and pine nuts. Seeds have not been highly sought out, except in the Willamette Valley and to the south, where tarweed and wyethia were eaten (Suttles 1990).

Extensive use of forest resources is typical of Northwest Coast culture, especially western red cedar and Alaska cedar for the construction of plank houses, canoes, and a wide variety of tools, as well as for baskets, cordage, matting, clothing, and specialized ritual purposes such as totem poles and masks. Specialized tools used for woodworking include stone and hardwood drills and adzes, and planes made of mussel shell (Ames and Maschner 1999).

Sitka spruce has often been used for houses and canoes along the northern coast, and western hemlock and Douglas-fir saplings were used to construct fish weirs. Red alder was the preferred wood for carving spoons, bowls, masks, and dishes, along with big-leaf maple, Rocky Mountain maple, and Alaska cedar. The western yew was used for bows, wedges, clubs, and digging sticks. The wood of ocean spray, found south of Vancouver Island, was preferred for harpoon foreshafts, spear prongs, mat needles, and spits for drying and roasting foods (Suttles 1990).

Rope and cordage have been made from western red cedar limbs, bull kelp stipes, cedar root, spruce root, willow bark, stinging nettle fibers, and Indian hemp. Cedar roots, cattail, tule, bear grass, sedges, and grasses have been used for basketry. The versatile inner bark of red and Alaska cedar is used for baskets, mats, skirts, capes, towels, and diapers. Medicinal plants included devil’s club, kinnickinnick, hogfennel, and tobacco, which was common throughout the region and cultivated in some locations (Suttles 1990).

In spite of the cultural diversity among the Northwest Coast groups, they share a remarkable degree of similarity in their material cultures (Wessen 1990). Highly sophisticated maritime adaptations and complex technologies include the use of oceangoing and other canoes and harpoons, fishnets, weirs, and fish traps (Maxwell 1978). Maritime resources used by Northwest Coast groups include salmon, halibut, cod, herring, eulachon (candlefish, an important source of oil in local diets), mussels, clams, sea urchins, whales, porpoise, seals, sea lions, and sea otter. Seabird eggs also have been an important source of food (Maxwell 1978).

Controlled burning was regularly practiced (possibly as early as 5,000 years ago in the Willamette Valley) by many groups to maintain plant product and nut-producing areas and improve game animal habitat along the coast and in some interior areas, from California to British Columbia (Ames and Maschner 1999). Other terrestrial resources include elk, deer, mountain sheep, mountain goat, beaver, marten, land otter, bear, and migrating ducks (Kehoe 1992).

Alaska

Alaska includes two major divisions, the Tundra and Subarctic Ecoregions of the Polar Domain and the Marine Ecoregion of the Humid Temperate Domain (Bailey 1995). Vegetation across this large region is varied: rugged coastline forests composed of cedar, spruce, hemlock, and fir lie south and east of Cook Inlet, boreal forest dominates the vegetation of the interior, and tundra covers the northern third of the state. Generally speaking, the Inuit (Eskimo and Aleut) inhabit the coastal areas and adjacent tundra, while Indians (Athabaskan or Tlingit) inhabit the interior forests and Southeast, although both groups have tremendous intra-cultural diversity and overlapping resource exploitation areas. Terrestrial and marine mammals and fish comprise the primary source of food for both groups, while large quantities of plant products generally are less available due to the region's short growing season. Alaska’s reliable maritime resources were crucial in the development of the densely populated, socially stratified societies of Southeast Alaska (Kehoe 1992), whereas the interior has long been occupied by mobile bands of hunter-gatherers. Groups such as the Haida and Tlingit live in Southeast Alaska, but are generally considered to be part of the Northwest Coast culture area.

For the Inuit, kelp and berries have been the principal plant foods, in addition to sarana lily bulbs, wild parsnip, cranberries, lupine and anemone roots, young fireweed, wild rhubarb, mushrooms, cowslip, and the bulb of the Kamchatka fritillary. Dune grass has been used to weave baskets for storing and transporting goods as well as making mats for houses, babies’

cradles, and wrapping the dead. Dried grasses were also used as wicks in lamps, coated with sea mammal oil (Kehoe 1992, Lantis 1984). Traditional Inuit shelters were semi-subterranean with rafters and flooring constructed from whale bone or driftwood. These shelters were then covered with animal skins or dried grasses, and overlain with sod (Lantis 1984). The Inuit are also known as talented wood carvers, using wood to carve bowls, plates, masks, hats, and shields.

Whales are the favored food source of the Inuit, most commonly the bowhead, gray, right, and beluga whales (Maxwell 1978). Other important maritime resources include Steller's sea lions, killer whales, narwhals, walruses, seals, porpoises, and sea otters. Many animals from various habitats also have been hunted and harvested: terrestrial mammals such as bear, beaver, squirrels, hare, porcupine, caribou, and marmots; birds such as cormorant, albatross, coot, eider duck, and eagle, as well as bird eggs; and river and ocean dwelling animals including chum and sockeye salmon, whitefish, pike, cod, halibut, sculpin, mussels, cockles, clams, anemones, and sea urchins. Animals have been utilized for more than meat. Often, skins and organs have been used for containers, hides for clothing, shelters, and boats; and bones used to create a variety of implements.

Alaska Indians, who are Northern Athabaskan and refer to themselves as "Dene" (Kehoe 1992), have focused their subsistence activities on the vast inland caribou herds and seasonally rich fish runs. Edible plant resources of the interior include berries, fern roots, lily bulbs, mushrooms, wild onions, wild rhubarb, rose hips, and various roots (Kehoe 1992). Many berries have been harvested, including mossberry, mouseberry, bunchberry, cranberry, blueberry, red raspberry, salmonberry, and winter-berry (Snow 1981). Traditionally, portable shelters were made from moose or caribou hides stretched over wooden frames and covered with bark, sod, or spruce boughs. Birch bark continues to be used for the manufacture of many utilitarian objects, including baskets, shelters, cooking pots, and canoes. The birch wood, along with willow, has been used for bows, arrows, snowshoe frames, and other wooden tools. Spruce wood was used for arrows, and for house and canoe frames. Ropes and fishing nets were made using willow bast, nettle fibers, and spruce roots. Spruce roots have many uses including containers and other basketry, sewing thread, and twine (McClellan and Deniston 1981). Framed houses often were covered with various types of brush, moss, and bark. Berries such as the silverberry and soapberry were used as clothing adornment (Slobodin 1981).

The Dene also utilize beaver, bear, moose, mountain sheep, and caribou (Kehoe 1992). In the northern interior, Indian hunters pursue Dall sheep (Maxwell 1978) and travel to the coast to collect and trade for marine resources. Many animals in Alaska are hunted for their fur, as well as for their food potential. Major fur bearing animals include wolf, wolverine, beaver, ermine, lynx, marten, mink, muskrat, red fox, and river otter (Gillespie 1978).

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